

## **Escherichia coli Infection, Shiga Toxin-Producing**

**Agent:** Shiga toxin-producing *Escherichia coli* (bacteria), also known as Verocytotoxin-producing *E. coli* (VTEC), enterohemorrhagic *E. coli* (EHEC), or STEC for short.

**Mode of Transmission:** Ingestion of food or water contaminated with human or animal feces, or direct transmission from infected persons or animals. Fomites and contaminated environments may also play a role in transmission.

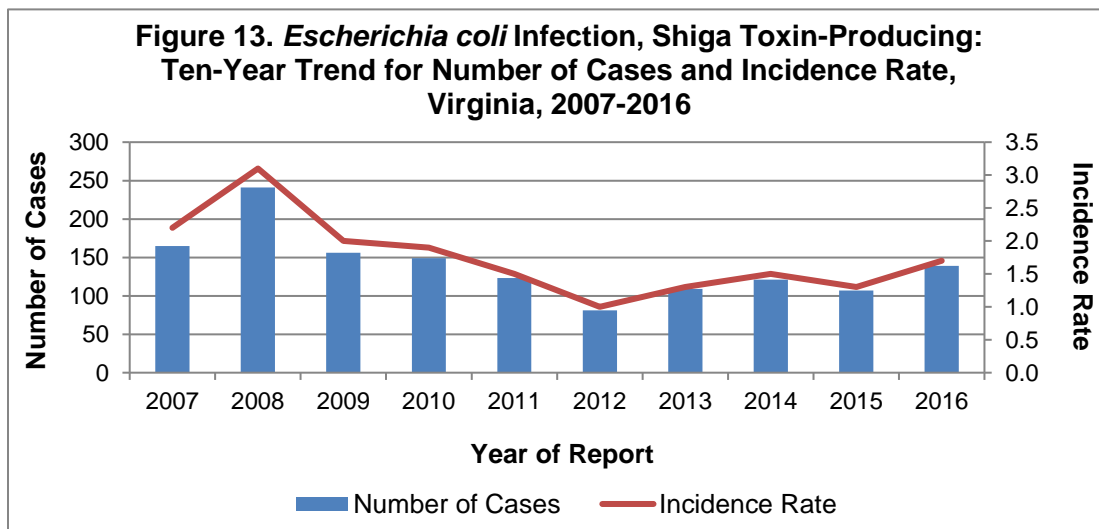
**Signs/Symptoms:** Diarrhea, which may be bloody or non-bloody, and severe abdominal cramps with little or no fever. In some people, including children less than five years of age and older adults, the infection can cause a complication called hemolytic uremic syndrome (HUS), in which the red blood cells are destroyed and the kidneys fail.

**Prevention:** Hands should be washed carefully after using the bathroom, after changing diapers or cleaning a child who has used the bathroom, after handling animals or their feces, and before preparing and eating food. All ground beef should be cooked thoroughly to an internal temperature of at least 160°. All milk, other dairy products, and juices should be pasteurized before being consumed.

**Other Important Information:** The most virulent STEC is *E. coli* O157:H7. In the U.S., *E. coli* O157:H7 is the serotype most commonly associated with hemolytic uremic syndrome (HUS). See the section on Hemolytic Uremic Syndrome in this report for more information. Shiga toxin-producing *E. coli* infection has been a reportable condition in Virginia since 1999.

<b><i>Escherichia coli</i> Infection, Shiga Toxin-Producing: 2016 Data Summary</b>	
Number of Cases:	139
5-Year Average Number of Cases:	108.2
% Change from 5-Year Average:	+28%
Incidence Rate per 100,000:	1.7

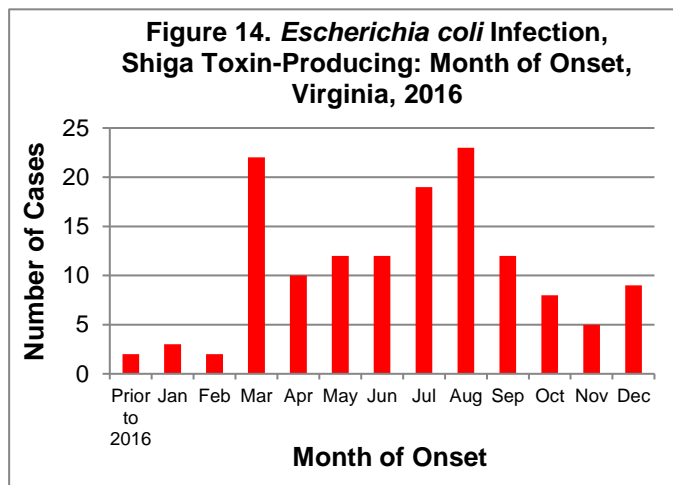
In 2016, 139 cases of Shiga toxin-producing *Escherichia coli* (STEC) infection were reported in Virginia. This represents a 30% increase from the 107 cases reported in 2015, and a 28% increase from the five-year average of 108.2 cases per year (Figure 13).



STEC infection occurs among all age groups, but the majority of cases occur in children. Children and the elderly are also more likely to develop severe illness. The incidence rate was highest in those less than one year of age (5.8 per 100,000), followed by the 1-9 year age group (4.6 per 100,000). Other age groups had rates between 0.3 and 2.7 per 100,000. Race information was not reported for 34% of cases. Among those with a known race, incidence was highest in the white population (1.4 per 100,000) compared to the black and “other” race populations (0.3 and 0.6 per 100,000, respectively). Incidence was higher among females than males (2.0 and 1.2 per 100,000, respectively).

The northwest region experienced the highest incidence rate with 3.1 cases per 100,000 population, followed by the northern region with 2.4 cases per 100,000. Incidence rates in the other regions ranged between 0.4 and 1.9 case per 100,000. Incidence rates by locality can be seen in the map below.

While infections occurred throughout the year, most cases were reported during the warmer months with 39% of cases being reported from July through September (Figure 14).



Two outbreaks attributed to STEC were reported during 2016. The outbreaks were associated with consumption of raw (unpasteurized) milk and travel outside the U.S. The number of cases ranged from twelve to fourteen per outbreak. The route of transmission was determined to be foodborne for both outbreaks.

### *Escherichia coli* Infection, Shiga Toxin-Producing Incidence Rate by Locality, Virginia, 2016

